AMENDMENTS TO THE CLAIMS

1-32 (Canceled)

33. (Currently amended) A method of distance measurement, comprising:

transmitting pulsed electromagnetic radiation (13) using at least one transmitter (11);

detecting reflected signal pulses (15) using at least one receiver (17);

measuring distances from objects (19) at which the transmitted radiation pulses (13) are reflected by determining a pulse propagation time;

measuring noise using the receiver (17) only with specific points in time (33) being determined at which at least one threshold (21) of the receiver (17) lying in the noise is passed through and ~~with~~ detecting changes in the noise caused by the signal pulses (15) ~~being detected~~ by averaging a plurality of individual measurements ~~respectively including~~ of noise at the specific points in time (33).

34. (Previously presented) A method in accordance with claim 33, wherein an individual measurement is generated for each transmitted radiation pulse (13).

35. (Previously presented) A method in accordance with claim 33, wherein generating and averaging of the individual measurements and the detection of the changes in the noise take place by means of a software-aided evaluation method.

36. (Previously presented) A method in accordance with claim 33, wherein a sequence of logical pulses (23) is generated by means of the threshold (21) of the receiver (17)

lying in the noise from the analog received signal (37) containing the noise pulses and/or noise pulses changed by the signal pulses (15), with the individual measurement being derived from this sequence.

37. (Previously presented) A method in accordance with claim 36, wherein the flanks of the logical pulses (23) are used as points in time (33) of the individual measurement.

38. (Previously presented) A method in accordance with claim 33, wherein the points in time (33) of the individual measurement are introduced into at least one memory (25, 27).

39. (Previously presented) A method in accordance with claim 33, wherein the points in time (33) of the individual measurement are first intermediately stored in a memory (25), in particular in a memory of an IC component (45), and are subsequently transferred to a further memory (27), in particular to a time pattern memory, with the points in time (33) being stored in the further memory (27) in an arrangement taking their respective time information into account.

40. (Previously presented) A method in accordance with claim 33, wherein the averaging of the individual measurements is carried out in at least one time pattern memory (27), with the same time pattern memory (27) preferably being used for all individual measurements to be averaged and with the corresponding memory cell of the time pattern memory (27) being increased by a value n in the case of a rising pulse flank and being reduced by the value n in the case of a falling flank, or vice versa, with the value 1 preferably being used for n.

41. (Previously presented) A method in accordance with claim 33, wherein a time pattern is used in the averaging of the individual measurements in which the measurement time is divided into a plurality of sequential time windows, with one memory cell of at least one time pattern memory (25, 27) preferably being associated with each time window.

42. (Previously presented) A method in accordance with claim 41, wherein the number of passing throughs of the threshold (21) of the receiver (17) is counted or averaged, in particular with the correct sign, for each time window in the averaging.

43. (Previously presented) A method in accordance with claim 33, wherein a distinction is made in the averaging between points in time (33) at which the threshold (21) of the receiver (17) is exceeded and points in time (33) at which the threshold (21) of the receiver (17) is fallen below, with preferably a point in time (33) of an exceeding being evaluated as positive and a point in time (33) of a falling below being evaluated negatively, or vice versa.

44. (Previously presented) A method in accordance with claim 33, wherein the average value is integrated into an amplitude function (29) subsequent to the averaging of the individual measurements.

45. (Previously presented) A method in accordance with claim 44, wherein the bandwidth of the amplitude function (29) is reduced in that averaging is preferably carried out in the amplitude function (29) in each case over a predetermined number of sequential time windows.

46. (Previously presented) A method in accordance with claim 44, wherein a detection threshold (31) is applied to the amplitude function (29) for the detection of the changes in the noise caused by the signal pulses (15).

47. (Previously presented) A method in accordance with claim 46, wherein the respective associated object distance is determined in the amplitude function (29) for the signal pulses (15) on the basis of at least one point in time (65) at which the detection threshold (31) is passed through.

48. (Previously presented) A method in accordance with claim 46, wherein the detection threshold (31) is set in dependence on a factor by which the threshold (21) of the receiver (17) is reduced with respect to a value of 4.5 NEP.

49. (Previously presented) A method in accordance with claim 48, wherein the detection threshold (31) is calculated from a calculation specification containing the factor.

50. (Previously presented) A method in accordance with claim 44, wherein, in the amplitude function (29) for the determination of nadirs of the signal pulses (15), in each case in the region of the rising flank and/or falling flank of the signal pulse (15), an extrapolation of the noise is carried out, a noise function obtained in this process is deducted from the amplitude function (29) and the point of intersection of the interpolated pulse flank with the average value

of the noise is determined as the nadir, with the object distances being determined on the basis of the nadirs.

51. (Previously presented) A method in accordance with claim 46, wherein a shape of the signal pulses (15) is evaluated in the amplitude function (29).

52. (Previously presented) A method in accordance with claim 33, wherein the averaging of the individual measurements takes place packet-wise in that a summing is carried out sequentially in each case via a number of single individual measurements and a division is made by the number of individual measurements for the formation of packet average values.

53. (Previously presented) A method in accordance with claim 52, wherein the object distances are determined from a single packet average value.

54. (Previously presented) A method in accordance with claim 52, wherein averaging is carried out over a plurality of packets and the object distances are determined from the average value hereby formed.

55. (Currently amended) An apparatus for distance measurement by determination of the pulse propagation time, comprising:

at least one transmitter (11) for the transmission of pulsed electromagnetic radiation (13); and

at least one receiver (17) for the detection of reflected signal pulses (15), wherein the receiver (17) comprises an amplifier (35) for the generation of an analog received signal (37) and a device (39) having at least one threshold (21) lying in the noise with which a sequence of logical pulses (23) ~~can be~~ are generated from the analog received signal (37); and

wherein an evaluation device (41) is associated with the receiver (17) with which a respective individual measurement ~~can be~~ is generated for a plurality of transmitted radiation pulses (13) only from points in time (33) which correspond to the flanks of the logical pulses (23) and an averaging of the individual measurements respectively including the determined points in time (33) ~~can be~~ are carried out for the detection of changes in the noise which are caused by the signal pulses (15).

56. (Previously presented) An apparatus in accordance with claim 55, wherein the device with the threshold (21) lying in the noise comprises at least one comparator (39) or at least one limiting amplifier.

57. (Previously presented) An apparatus in accordance with claim 55, wherein a clock (43) for the emission of cycle pulses of a known width with a known frequency and a counter with which the cycle pulses emitted during a time period are provided for the determination of time periods which respectively pass from the transmission of a radiation pulse (13) up to a point in time (33) corresponding to a flank of a logical pulse (23).

58. (Previously presented) An apparatus in accordance with claim 55, wherein the measurement time is divided into a plurality of sequential time windows and the evaluation

device (41) comprises at least one time pattern memory (27) whose memory cells are each associated with a time window.

59. (Previously presented) An apparatus in accordance with claim 58, wherein the value of each memory cell is changeable by a pulse flank falling into the corresponding time window, with each memory cell preferably being able to be increased by a rising pulse flank by a value n and, in the case of a falling flank, being able to be reduced by the value n, or vice versa, with the value 1 preferably being provided for n.

60. (Previously presented) An apparatus in accordance with claim 55, wherein the generation and the averaging of the individual measurements as well as the detection of the changes in the noise can be carried out by means of a software-aided evaluation method.

61. (Previously presented) An apparatus in accordance with claim 55, wherein the evaluation device (41) comprises at least one IC component (45) in which at least the generation of the individual measurements can be carried out.

62. (Previously presented) An apparatus in accordance with claim 61, wherein the evaluation unit (41) comprises at least one microprocessor (47) and at least one interface (49) for the transmission of the generated individual measurements from the IC component (45) into the microprocessor (47), with at least the averaging of the individual measurements and the detection of the changes in the noise being able to be carried out by means of the microprocessor (47) and of at least one memory (27).

63. (New) A method of distance measurement, comprising:

transmitting pulsed electromagnetic radiation (13) using at least one transmitter (11);

detecting reflected signal pulses (15) using at least one receiver (17);

measuring distances from objects (19) at which the transmitted radiation pulses (13) are reflected by determining a pulse propagation time;

measuring noise using the receiver (17) only with specific points in time (33) being determined at which at least one threshold (21) of the receiver (17) lying in the noise is passed through and ~~with~~ detecting changes in the noise caused by the signal pulses (15) ~~being detected~~ by averaging a plurality of individual measurements ~~respectively including~~ of noise at the specific points in time (33);

wherein a sequence of logical pulses (23) is generated by means of the threshold (21) of the receiver (17) lying in the noise from the analog received signal (37) containing the noise pulses and/or noise pulses changed by the signal pulses (15), with the individual measurement being derived from this sequence; and

wherein the flanks of the logical pulses (23) are used as points in time (33) of the individual measurement..

64. (New) A method of distance measurement, comprising:

transmitting pulsed electromagnetic radiation (13) using at least one transmitter (11);

detecting reflected signal pulses (15) using at least one receiver (17);

measuring distances from objects (19) at which the transmitted radiation pulses (13) are reflected by determining a pulse propagation time;

measuring noise using the receiver (17) only with specific points in time (33) being determined at which at least one threshold (21) of the receiver (17) lying in the noise is passed through and ~~with~~ detecting changes in the noise caused by the signal pulses (15) ~~being detected~~ by averaging a plurality of individual measurements ~~respectively including~~ of noise at the specific points in time (33);

wherein a distinction is made in the averaging between points in time (33) at which the threshold (21) of the receiver (17) is exceeded and points in time (33) at which the threshold (21) of the receiver (17) is fallen below.